

REMARKS/ARGUMENTS

This is a reply to the Final Office Action dated March 19, 2007.

Status of Claims

Claims 1-3 and 6-12 remain in this application. Claims 4, 5 and 13 have been canceled. Claims 1 and 7 are presently amended. No new claims are presently added.

Claim 1 has been amended to incorporate the recitations of its dependent claim 5, and clarifies that the natural fibers are cellulosic fibers (e.g., page 2, line 21; p. 3, last line to p. 4, line 1). Claim 7 has a minor editorial change. No new matter has been introduced.

Interview Summary

Applicant's undersigned representative thanks the Examiner of record for the courtesy of the personal interview conducted with said representative on this application on June 11, 2007. Applicant's representative explained that the primary reference to Oathout combines synthetic fiber and cellulosic pulp fiber layers in a spunlaced fabric, but does not teach acid washing the fabric. It was also noted that the secondary reference to Bahten discloses *synthetic* polymer members, such as foamed PVA brushes, and not natural/cellulosic fiber containing articles as in the present invention. Moreover, it was discussed that Bahten discloses treating the synthetic polymer members with mineral acids such as hydrochloric acid or sulfuric acid, or organic polycarboxylic acids like citric acid, which are types of acids that would be expected to harm and/or react with cellulosic fibers, unlike organic monocarboxylic acids like acetic acid. Applicant's representative discussed that citric acid and other organic polycarboxylic acids (PCA's) are taught in the art for use as crosslinking agents for cellulosic fibers. Similarly, it was noted that it is common experience and knowledge among chemists that mineral acids tend to harm cotton fabrics, e.g., they will stain and/or degrade them. It was emphasized that in the present invention a *non-reactive* acetic acid wash is used to wash/remove metal ionic contaminants from the spunlaced synthetic polymer layer/cellulosic fiber layer fabric. As to the reference to Palm et al., Applicant's representative took the position at the interview that even if Palm et al. is considered to suggest citric acid and acetic acid may be "equivalents" for limited purposes of washing out metal ions from *inorganic particle*-based substrates as taught by Palm et al., that any such indicated "equivalence" does not extend to cellulosic fiber-containing nonwoven fabrics such as recited in the present invention. As the outcome of the interview, no

specific agreement on allowable subject matter was reached at the time of the interview. The Examiner and Applicant's representative discussed the possibility of Applicant submitting a written response including the arguments presented by Applicant's representative at the interview with citations of technical literature supporting Applicant's arguments about the non-equivalence of the acids taught in the prior art for use in treating cellulosic fibers. The Examiner was also understood to suggest that Applicant amend the claims to recite acetic acid in all the independent claims being argued.

Response to 35 U.S.C. § 112, First Paragraph, Rejection of Claim 13

Claim 13 was rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement. This rejection is moot in view of the cancellation of claim 13.

Response to 35 U.S.C. § 103(a) Rejection of Claims 1-3, 6, 11, and 13 Based on Oathout and Bahten

Claims 1-3, 6, 11 and 13 were rejected under 35 U.S.C. § 103(a) as obvious over Oathout (USP 5,459,912) in view of Bahten (USP 6,182,323).

The present invention concerns nonwoven wipe constructs suitable for use in clean room applications, such as are employed in the manufacture of microelectronic components and devices. In such an environment, the provision of wipes exhibiting low sodium *and* low linting characteristics is extremely important. An acetic acid wash, as part of other processing, is used to provide a non-woven wipe having these combined attributes without adversely impacting or altering the nonwoven fabric *per se*, and especially the cellulosic fiber layer thereof.

Oathout may describe patterned spunlaced fabrics containing a polymeric staple fiber layer and a natural fiber layer that are hydroentangled, but fails to disclose any sodium ion content thereof, nor an acetic acid/de-ionized water washing step used to reduce sodium ion content thereof. Oathout fails to appreciate the problem solved by the present invention, much less take any measure(s) to address it.

Based on Applicant's review, Bahten discloses providing a scrubbing brush for the manufacture of substrates for the electronic industry in which a synthetic foam or sponge member is processed to reduce its calcium concentration to less than about 1 part per million (see, e.g., abstract; col. 2, lines 16-17, 23-26, 33-38; col. 3, lines 15-16; col. 4, lines 24-26; col. 7, lines 9-13; col. 8, lines 24-25; col. 9, lines 44-45; col. 15, lines 24-25).

The primary reference to Oathout concerns patterned spunlaced fabrics containing woodpulp, not synthetic foam and sponge members as taught by Bahten. Thus, one of ordinary skill in the art would not consider combining these two references to get the presently claimed invention.

Bahten teaches away from present invention. For the acid wash, Bahten mentions "citric acid", and also mentions the mineral acids hydrochloric acid and sulfuric acid (col. 11, lines 5-11). However, as discussed at said interview, polycarboxylic acids like citric acid are types of organic acids that would be expected to harm and/or react with cellulosic fibers, unlike monocarboxylic organic acids such as acetic acid. For example, reference is made to U.S. Pat. Nos. 6,306,251 (col. 1, line 65 et seq.), 6,184,271 (col. 2, line 8 et seq.), 6,986,793 (e.g., col. 1, line 60 et seq.), and 6,989,035 (abstract), listed on the accompanying Information Disclosure Statement, which explain that polycarboxylic acids such as citric acid have been used to crosslink cellulose fibers, and that such acids can cause yellowing of the fibers and generate odors. As discussed at the interview, it is common experience and knowledge among chemists that mineral acids tend to harm natural cellulosic fibers such as cotton fabrics. Therefore, Applicants submit that it would not have been considered desirable by one of ordinary skill in the art to consider using citric acid or mineral acid as taught in Bahten to wash the fabric of Oathout containing wood pulp.

Also, Bahten requires an elaborate multi-step treatment process including caustic washes and chelation washes, etc. (see, e.g., col. 7, lines 5-65; col. 9, lines 1-20). In the present invention, very low sodium ion impurity levels can be achieved in a nonwoven with a single acetic acid wash and single rinse wash (see instant Fig. 1, acid wash 23, rinse wash 24), which is a much simpler scheme than required by Bahten.

In view of at least the above, reconsideration and withdrawal of the rejection is respectfully requested.

Response to 35 U.S.C. § 103(a) Rejection of Claims 5, 6, 7-11 and 12 Based on Oathout, Bahten and Palm et al.

Claims 5, 6, 7-11 and 12 were rejected under 35 U.S.C. § 103(a) as obvious over Oathout in view of Bahten, as applied to claims 1-3, 6, 11 and 13, and further in view of Palm et al. (USP 5,776,353).

As discussed at said interview, Palm et al. disclose acid washing of composite filtration media comprising heterogeneous media particles, viz., diatomite and expanded perlite, and not wood pulp fibers such required by Oathout. The present claims recite nonwoven fabrics comprised of synthetic fiber and cellulosic fiber layers, not inorganic particles.

Palm et al. describe agglomerates comprising inorganic functional filtration components, such as those mentioned in the preceding paragraph, and matrix components (co. 5, lines 4-10). The matrix components may be glass, thermoplastic, thermoset, etc., but are not in fiber form in the filtration media, much less nonwoven form (e.g., see col. 8, line 16 *et seq.*). Thus, Palm et al. appears to be unrelated to the claimed invention.

Given the significant divergence in technological arts between Palm et al. and Oathout, one of ordinary skill in the art would not have been motivated to incorporate acid washing processes described only for inorganic particle-based filtration media per Palm et al. in woodpulp fabrics according to Oathout. As discussed at the interview, even if Palm et al. may suggest citric acid and acetic acid are “equivalents” for limited purposes of washing out metal ions from *inorganic particle*-based substrates as suggested by Palm, that disclosed “equivalence” does not extend to cellulosic fiber containing fabrics such as used in the present invention. Neither Palm et al., nor Bahten, faced or considered the problem of protecting cellulosic fibers during acid wash such as encountered in the present invention.

In view of at least the above, reconsideration and withdrawal of the rejection is respectfully requested.

It is believed that this application is in condition for allowance, and notice of such is respectfully requested.

U.S. Patent Application No. 10/650,584
Amendment Submitted With RCE
Reply to Office Action dated March 19, 2007

If the Examiner believes that a teleconference would be useful is expediting the prosecution of this application, the official is kindly invited to contact Applicant's undersigned representative of record.

Respectfully submitted,

/Ramon R. Hoch/
Ramon R. Hoch, Reg. #34108

Date: June 18, 2007

Direct Correspondence To:

Customer Number 62753
Valerie Calloway, Esq.
Polymer Group, Inc.
9335 Harris Corners Parkway, Suite 300
Charlotte, North Carolina 28269
(704) 697-5177